River Boxes

Grades 3 – 8

INTRODUCTION:
Students know that rivers and streams can sometimes be muddy, but they may not know that some sediment that makes the river muddy can come from the riverbed itself, and is a result of the river eroding or cutting into the riverbed. This activity will help students understand the erosion process and its part in the formation of rivers and streams.

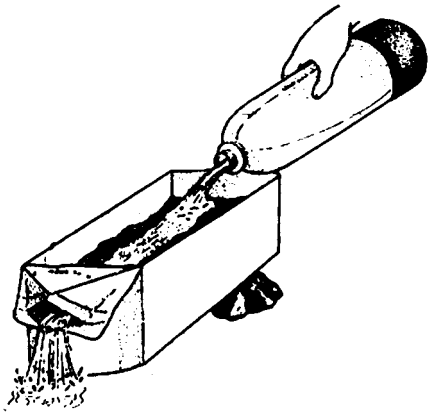
CHALLENGE:
Can you build your own model of a river and show how water can cut a riverbed?

MATERIALS:
- Empty ½ gallon milk carton
- 2 liter bottle for water
- An outdoor source of soil (ideally a sandy soil)
- A graduated cylinder or beaker
- A ruler
- Scissors
- A water supply
- A garden trowel

PROCEDURE:
1) Begin a discussion about rivers and streams.

2) Provide each team with an empty ½ gallon milk carton and scissors. Use scissors to cut out the side panel of the carton under the spout, leaving the spout intact.

3) Proceed outdoors. Lay the milk carton on its side, with the cut out panel facing up. Dig enough soil to fill the container at least half full. Gently pat the soil to smooth the surface.



4) To simulate a flowing river, set one end of the milk carton approximately ½ inch higher than the other end, maybe using a small rock or piece of wood to prop up the carton. The lower end of the carton should be the end with the open spout so when water is poured into the top, it will flow over the surface of the soil and out the lower end without forming a "lake."

5) Slowly pour 2 liters of water on the soil, maintaining an even constant flow of water. The goal is to provide a small stream of water, not a sudden flood. Observe what happens to the water and the characteristics of the resulting river, including the path cut and the depth of the riverbed.

QUESTIONS:
What was the water carrying down the river? Where did the sediment come from? How did the water cut a riverbed?

FURTHER CHALLENGES:
(With a fresh soil sample) Raise the carton so it is even more elevated on one side. Observe the difference in the flow of the water and the resulting river compared to the previous trial.

Adapted from *Water, Stones, & Fossil Bones* by Karen K. Lind
Activity created by David R. Stronck

SONOMA COUNTY WATER AGENCY